IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Mitchell et al	Confirmation No.: 4252
Serial No.: 09/939,066	Group Art Unit: 2624
Filed: August 24, 2001	Examiner: Chen
Title: Managing Image Storage Size	Docket No.: CHA920010012US1 (IBMC-0023)

Appeal Brief Under 37 CFR §41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 2213-1450

Sir:

Appellant filed a Pre-Appeal Brief Request For Review on July 31, 2006, requesting that a panel of examiners formally review the legal and factual basis of the rejections used in the final rejection of claims 1-39 and 41 for the above-identified patent application. Appellant also filed a Notice of Appeal with the Pre-Appeal Brief Request For Review on July 31, 2006. The Panel Decision from the Pre-Appeal Brief Review dated December 13, 2006, held that the application remains under appeal because there is at least one actual issue for appeal. Under 37 CFR §41.37, Appellant submits this Appeal Brief to the Board of Patent Appeals and Interferences (Board).

I.   Real Party In Interest

The real party in interest for this patent application is the International Business Machines Corporation, a New York corporation, having a place of business at New Orchard Road, Armonk, New York 10504.

II.   Related Appeals And Interferences

There are no other known appeals, interferences or judicial proceedings that may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal of this patent application.

III.   Status Of The Claims

Claims 1-39 and 41 are pending and have been rejected as set forth in the Final Office Action dated May 24, 2005, while claim 40 was cancelled earlier in the prosecution of the application. The claims on appeal are claims 1-39 and 41.

IV.   Status Of Amendments

There have not been any amendments filed subsequent to the Final Office Action.

V.   Summary Of Claimed Subject Matter

The claimed invention relates generally to managing image storage size. Below is a concise explanation of the subject matter defined in independent claims 1, 21, 30, 39 and 41 which are each involved in this appeal. In addition, the explanation points out elements in the figures that correspond to claim features as

well as sections in the specification of the patent application that discuss the features.

Claim 1 recites a method for managing an image of an object stored in a database. The method of claim 1 comprises reducing a storage size of the image from a base level to at least one secondary level based on reduction criteria wherein each secondary level is smaller in storage size than the base level. The reducing includes replacing the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

FIG. 3 of the present patent application shows the subject matter recited in claim 1. In particular, blocks S1-S7 describe the process acts of reducing a storage size of the image from a base level to a secondary level based on reduction criteria, wherein the secondary level is smaller in storage size than the base level. Blocks S1-S7 also describe storing this smaller sized image in a database 5 which is shown in FIG. 1. The description on page 10, line 3 through page 16, line 2 in the present patent application describes the details associated with FIG. 3.

Claim 21 recites a method for managing storage size of an image of an object that is accessed by a user. The method of claim 21 comprises reducing the storage size of the image based on reduction criteria to create a size-reduced version. The size-reduced version replaces the image such that the size-reduced image version is the only version of the image stored in the database. The method of claim 21 further comprises allowing a user access to the size-reduced version for a predetermined duration. The steps of reducing and allowing are repeated after expiration of the

predetermined duration, wherein each reduction replaces a previous size-reduced version.

The relevant sections in the specification for the content recited in claim 21 are similar to claim 1. More specifically, FIG. 3 of the present patent application shows the subject matter recited in claim 21 and page 10, line 3 through page 16, line 2 in the present patent application describes the details associated with the process acts shown in FIG. 3.

Claim 30 recites a system for managing storage size of an image of an object where the image is accessed by a user online. The system of claim 30 comprises a size-reduction evaluator to periodically evaluate whether the image is subject to a size reduction based on size-reduction criteria. A size reducer reduces the size of the image based on instructions from the size-reduction evaluator and replaces the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

FIG. 2 of the present patent application shows the subject matter recited in claim 30. In particular, FIG. 2 shows that an image management system 26 includes a size reduction evaluation module 34 and a size reduction module 36. The description on page 9, line 18 through page 18, line 19 in the present patent application describes the details associated with the image management system 26 including the size reduction evaluation module 34 and size reduction module 36.

Claim 39 recites a system for managing storage size of an image of an object accessed by a user. The system of claim 39 includes means for evaluating the

image based on reduction criteria to determine whether to reduce the data storage size of the image, leave the image alone or purge the image. The system of claim 39 further includes means for reducing the data storage size of the image based on the results of the means for evaluating and for replacing the image with a size-reduced image such that the size-reduced image version is the only version of the image stored in the database.

FIG. 2 of the present patent application shows the subject matter recited in claim 39 which is similar to claim 30. In particular, FIG. 2 shows that the image management system 26 includes the size reduction evaluation module 34 and the size reduction module 36 which correspond to the means for evaluating the image based on reduction criteria and the means for reducing the data storage size, respectively. FIG. 2 also shows reduction criteria 21 and reduction purging rules 23 used with the size reduction evaluation module 34 and a size reduction module 36. The material on page 9, line 18 through page 18, line 19 in the present patent application describes the details associated with the image management system 26 including the size reduction evaluation module 34, size reduction module 36, reduction criteria 21 and reduction purging rules 23.

Claim 41 recites a program product stored on a computer readable medium for managing a size of a stored image that is accessible to a user. The computer readable medium comprises program code that evaluates the image based on reduction criteria which are independent of image capture to determine whether to reduce the data storage size of the image, leave the image alone or purge the image. The computer readable medium further comprises program code that

reduces the data storage size of the image based on the results of the evaluating and replaces the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

The relevant sections in the specification for the content recited in claim 41 are similar to the sections in the specification that correspond to claim 39. Page 23, line 22 through page 24, line 18 in the specification of the present patent application provide some details associated with the computer readable medium which may be stored in memory 12 of the image management system 8 shown in FIG. 2.

VI.   Grounds Of Rejections To Be Reviewed On Appeal

The grounds of rejection to be reviewed on appeal are whether claims 1-4, 11-12, 14-19, 30-36, 38-39, and 41 under 35 USC §102(e) are patentable over Keller et al. (US Patent Application Publication Number 2002/0102028); whether claims 21-23 and 25-29 under 35 USC §103(a) are patentable over the combination of Keller et al. (Keller) in view of Morris et al. (US Patent Number 5,153,936); whether claim 20 under 35 USC §103(a) is patentable over the combination of Keller as applied to claim 1 and further in view of Ishida (JP 09181892A); whether claims 5-6 and 8-10 under 35 USC §103(a) are patentable over the combination of Keller as applied to claim 1, and further in view of Takayama (US Patent No. 5,970,176); whether claim 7 under 35 USC §103(a) is patentable over the combination of Keller and Takayama as applied to claim 5, and further in view of Sato et al. (US Patent Application Publication No. 2002/0003905); whether claims 13 and 37 under 35 USC §103(a) are patentable over the combination of Keller as applied to claims 1 and 30, and further in view of Takayama and Christopoulos et al. (US Patent No. 6,526,099); and

whether claim 24 under 35 USC §103(a) is patentable over the combination of Keller and Morris et al. (Morris) as applied to claim 23 and further in view of Takayama and Christopoulos et al. (Christopoulos).

VII.   Argument

A.   Whether claims 1-4, 11-12, 14-19, 30-36, 38-39, and 41 under 35 USC §102(e) are patentable over Keller

1.   Keller does not anticipate the subject matter recited in claims 1-4, 11-12, 14-19, 30-36, 38-39, and 41.

i.   Claims 1, 30, 39 and 41

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).   While the teaching in the prior art reference need not be *ipsissimis verbis*, nevertheless, there must be a teaching with respect to the entirety of the claimed invention.   *Structural Rubber Products Co. v. Park Rubber Co.*, 223 USPQ 1264,1270-71 (Fed. Cir. 1984).

In the present patent application, claims 1, 30, 39 and 41 recite, *inter alia*, the limitation of replacing the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database. Keller does not teach having a size-reduced image version that is the only version of the image stored in a database. As stated in Appellant's Amendment of March 23, 2006, on page 11, paragraph 2, Keller teaches that the temporary storage medium 11 within the image server 1 stores compressed image data S1, S2 and S org of image S (see FIG. 1 and paragraph 61 in Keller).   Therefore, Keller can store

anywhere from two to three size-reduced images of the same image S in the image server 1. Regardless of what form the size-reduced image data takes, the temporary storage medium 11 stores three size-reduced images that relate to image S (i.e., S org, S1 and S2). In addition, if one included the storage of image S in the archive 12 of the image server 1, which is not in a compressed state, then the image server of Keller can store up to four images.

No matter how the storage capabilities of the image server 1 of Keller are interpreted; the temporary storage medium 11 on its own, the archive 12 on its own or the combination of both the temporary storage medium and the archive, none anticipate the claim limitation of having a size-reduced image version that is the only version of the image stored in the database. In particular, the temporary storage medium 11 stores three size-reduced images of the image S , the archive 12 stores S but it is not in a compressed state, and the combination of the temporary storage medium and archive store a total of four images.

Because Keller does not disclose the claim limitation of having a size-reduced image version that is the only version of the image stored in the database, Appellant submits that Keller does not anticipate independent claims 1, 30, 39 and 41. Therefore, Appellant requests that the Board reverse the §102(e) rejection of claims 1, 30, 39 and 41 under Keller.

> ii.   *Claims 2-4, 11-12, 14-19, 31-36 and 38*

Claims 2-4, 11-12, 14-19; and 31-36, 38 depend directly or indirectly from presumably allowable claims 1 and 30, respectively, and thus are in allowable

condition by dependency. Therefore, Appellant requests that the Examiner reconsider and remove the §102(e) rejection of claims 2-4, 11-12, 14-19; and 31-36, 38 under Keller.

B. Whether claims 21-23 and 25-29 under 35 USC §103(a) are patentable over the combination of Keller in view of Morris

1. The combination of Keller in view of Morris does not disclose or suggest claims 21-23 and 25-29.

i. Claim 21

Claim 21, like claims 1, 30, 39 and 41, also recite, *inter alia*, the limitation of replacing the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Morris has been added for its disclosure of using a digital image system that displays images at multiple resolutions. Morris provides no teachings, hints or motivations that suggest the desirability of replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Since Keller and Morris do not disclose or suggest replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database, Appellant submits that the combination of Keller in view of Morris does not disclose or suggest this limitation. Accordingly,

claim 21 of the present patent application is patentably distinguishable over the combination of Keller in view of Morris. Therefore, Appellant requests that the Board reverse the §103(a) rejection of claim 21.

ii.   Claims 22-23 and 25-29

Claims 22-23 and 25-29 depend from presumably allowable claim 21, and thus Appellant submits that these claims are allowable by dependency. Therefore, Appellant requests that the Board reverse the §103(a) rejections of claims 22-23 and 25-29.

C.   Whether claim 20 under 35 USC §103(a) is patentable over the combination of Keller in view of Ishida

1. The combination of Keller in view of Ishida does not disclose or suggest claim 20.

Ishida has been added for its disclosure of using statistical data in a digital image system. Ishida provides no teachings, hints or motivations that suggest the desirability of replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Since the combination of Keller and Ishida do not disclose or suggest replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database, Appellant submits that the combination of Keller in view of Ishida does not disclose or suggest these limitations. Accordingly, claim 1 of the present patent application is patentably

distinguishable over the combination of Keller in view of Ishida. Claim 20 depends from presumably allowable claim 1, and thus Appellant submits that this claim is allowable by dependency. Therefore, Appellant requests that the Board reverse the §103(a) rejection of claim 20.

> D.   Whether claims 5-6 and 8-10 under 35 USC §103(a) are patentable over the combination of Keller applied to claim 1, and further in view of Takayama

> **1. The combination of Keller in view of Takayama does not disclose or suggest claims 5-6 and 8-10.**

Takayama has been added for its disclosure of generating image data of various compression levels. Takayama provides no teachings, hints or motivations that suggest the desirability of replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Since Keller and Takayama do not disclose or suggest replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database, Appellant submits that the combination of Keller in view of Takayama does not disclose or suggest these limitations. Accordingly, claim 1 of the present patent application is patentably distinguishable over the combination of Keller in view of Takayama. Claims 5-6 and 8-10 depend from presumably allowable claim 1, and thus Appellant submits that

these claims are allowable by dependency. Therefore, Appellant requests that the Board reverse the §103(a) rejection of claims 5-6 and 8-10.

> E. Whether claim 7 under 35 USC §103(a) is patentable over the combination of Keller and Takayama as applied to claim 5, and further in view of Sato et al. (Sato)

1. The combination of Keller and Takayama in view of Sato does not disclose or suggest claim 7.

Sato has been added for its disclosure of using a JPEG 2000 compression format. Sato provides no teachings, hints or motivations that suggest the desirability of replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Since Keller, Takayama and Sato do not disclose or suggest replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database, Appellant submits that the combination of Keller, Takayama in view of Sato does not disclose or suggest these limitations. Accordingly, claim 1 of the present patent application is patentably distinguishable over the combination of Keller, Takayama in view of Sato. Claim 7 depends from presumably allowable claims 1 and 5, and thus Appellant submits that this claim is allowable by dependency. Therefore, Appellant requests that the Board reverse the §103(a) rejection of claim 7.

<u>F.   Whether claims 13 and 37 under 35 USC §103(a) are patentable over the combination of Keller as applied to claims 1 and 30, and further in view of Takayama and Christopoulos</u>

1. The combination of Keller in view of Takayama and Christopoulos does not disclose or suggest claim 13 and 17.

Christopoulos has been added for its disclosure of transcoding compressed image data. Christopoulos provides no teachings, hints or motivations that suggest the desirability of replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Since Keller, Takayama and Christopoulos do not disclose or suggest replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database, Appellant submits that the combination of Keller, Takayama in view of Christopoulos does not disclose or suggest these limitations. Accordingly, claims 1 and 30 of the present patent application are patentably distinguishable over the combination of Keller, Takayama in view of Christopoulos. Claims 13 and 37 depend from presumably allowable claims 1 and 30, respectively, and thus Appellant submits that these claims are allowable by dependency. Therefore, Appellant requests that the Board reverse the §103(a) rejection of claims 13 and 37.

G. Whether claim 24 under 35 USC §103(a) is patentable over the combination of Keller and Morris as applied to claim 23 and further in view of Takayama and Christopoulos

1. The combination of Keller and Morris in view of Takayama and Christopoulos does not disclose or suggest claim 24.
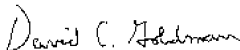
Christopoulos has been added for its disclosure of transcoding compressed image data. Christopoulos provides no teachings, hints or motivations that suggest the desirability of replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Since Keller, Morris, Takayama and Christopoulos do not disclose or suggest replacing an image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database, Appellant submits that the combination of Keller and Morris in view of Takayama and Christopoulos does not disclose or suggest this limitation. Accordingly, claim 21 of the present patent application is patentably distinguishable over the combination of Keller and Morris in view of Takayama and Christopoulos. Claim 24 depends from presumably allowable claims 21 and 23, and thus Appellant submits that this claim is allowable by dependency. Therefore, Appellant requests that the Board reverse the §103(a) rejection of claim 24.

VIII.   Summary

The Examiner has failed to support the burden of establishing a prima facie case of anticipation and obviousness. In particular, the Examiner has not shown that all of the claim limitations are taught or suggested by the prior art. Therefore, Appellant submits that the anticipation rejection and the obviousness rejections are untenable and requests that the Board reverse the rejections set forth in the Final Office Action.

Respectfully submitted,

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Below is a copy of the claims involved in this appeal.

1.   A method for managing an image of an object stored in a database, the method comprising the steps of:

reducing a storage size of the image from a base level to at least one secondary level based on reduction criteria wherein each secondary level is smaller in storage size than the base level; and

wherein the step of reducing includes replacing the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

2.   The method of claim 1, further comprising the step of repeating the step of reducing to reduce the storage size of the size-reduced image from one secondary level to another secondary level based on the reduction criteria.

3.   The method of claim 2, wherein the step of repeating occurs after expiration of a predetermined duration.

4.   The method of claim 1, wherein the image is of a document.

5.   The method of claim 1, wherein the base level is a compressed format and each secondary level has a different Q-table than the base level.

6.   The method of claim 5, wherein the compressed format is a JPEG baseline compression format.

7.　　The method of claim 5, wherein the compressed format is a JPEG 2000 compression format.

8.　　The method of claim 5, wherein the at least one secondary level includes at least two secondary levels, each secondary level having a different Q-table than every other secondary level.

9.　　The method of claim 8, wherein a first secondary level exhibits lower image quality compared to the base level; and a second secondary level exhibits lower image quality compared to the first secondary level.

10.　　The method of claim 9, wherein the at least two secondary levels includes at least three secondary levels; and a third secondary level exhibits lower image quality compared to the second secondary level.

11.　　The method of claim 1, wherein the image includes a plurality of images.

12.　　The method of claim 1, wherein the step of reducing includes compressing the image.

13.　　The method of claim 1, wherein the image is in a compressed format and the step of reducing includes entropy decoding the image, changing quantized coefficients and quantization tables, and entropy recoding the image.

14.　　The method of claim 1, wherein an initial step of reducing includes deleting a portion of the image.

15. The method of claim 1, wherein the reduction criteria includes at least one of: available data storage, time since object creation, time since object imaging, prior size reduction, prior access by user, object value, user account type, volume of objects per user account, user total account value, a user selection, user fees paid, user account history, suspicious activity and object part imaged.

16. The method of claim 1, further comprising the step of maintaining a copy of image at the base level.

17. The method of claim 16, further comprising the step of replacing the image at the secondary level with a copy of the image at the base level when a user requests access to the copy of the image at the base level.

18. The method of claim 17, wherein the user includes an indication of the duration that the base level will be required when the user requests the copy of the image at the base level.

19. The method of claim 1, wherein a final step of reducing includes purging the image.

20. The method of claim 1, further comprising the step of maintaining statistical data for comparison with the reduction criteria.

21. A method of managing storage size of an image of an object, wherein the image is accessed by a user, the method comprising the steps of:

reducing the storage size of the image based on reduction criteria to create a size-reduced version, the size-reduced version replacing the image such that the size-reduced image version is the only version of the image stored in the database;

allowing user access to the size-reduced version for a predetermined duration; and

repeating the steps of reducing and allowing after expiration of the predetermined duration, wherein each reduction replaces a previous size-reduced version.

22.   The method of claim 21, wherein the step of reducing includes compressing the image.

23.   The method of claim 21, wherein the image is in a compressed format and the step of reducing includes achieving more compression.

24.   The method of claim 23, wherein the step of reducing includes entropy decoding the image, changing quantized coefficients and quantization tables, and entropy recoding the image.

25.   The method of claim 21, wherein an initial step of reducing includes deleting a portion of the image.

26.   The method of claim 21, wherein the reduction criteria includes at least one of: available data storage, time since object creation, time since object imaging, prior size-reduction, prior access by user, object value, user account type, volume of objects per user account, user total account value, user selections, user fees paid,

user account history, suspicious activity and object side imaged.

27.   The method of claim 21, further comprising the step of maintaining a substantially lossless quality version of the image.

28.   The method of claim 27, further comprising the step of allowing the user to access the substantially lossless quality version upon request.

29.   The method of claim 21, wherein a final step of reducing includes purging the image.

30.   A system for managing storage size of an image of an object where the image is accessed by a user online, the system comprising:

a size-reduction evaluator to periodically evaluate whether the image is subject to a size reduction based on size-reduction criteria; and

a size reducer to reduce the size of the image based on instructions from the size-reduction evaluator and to replace the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

31.   The system of claim 30, further comprising a designator to assign the image a designation indicative of the status of the image based on the size-reduction criteria.

32.   The system of claim 31, wherein the size-reduction criteria includes at least one of: prior size-reduction, prior access by user, object value, user account type, volume of objects in user account, user total account value, a user selection,

user fee paid, user account history and object side imaged.

33.   The system of claim 32, wherein the size-reduction criteria includes real-time factors including at least one of: available data storage, suspicious activity, time since object creation and time since object imaging.

34.   The system of claim 30, further comprising a storage module to save a substantially lossless quality version of the image.

35.   The system of claim 30, wherein the size-reduction evaluator determines whether to leave the image alone, reduce the storage size of the image or purge the image.

36.   The system of claim 30, wherein a first activation of the size reducer purges an image portion of the image.

37.   The system of claim 30, wherein the image is in a compressed format and the size reducer is adapted to decode the image, change a dynamic range scaling of the image, and recode the image.

38.   The system of claim 30, wherein the size-reduction evaluator determines a reduction/purging rule to be followed by the size reducer based on the reduction criteria.

39.   A system for managing storage size of an image of an object, wherein the image is accessed by a user, the system comprising:

means for evaluating the image based on reduction criteria to determine whether to reduce the data storage size of the image, leave the image alone or purge the image; and

means for reducing the data storage size of the image based on the results of the means for evaluating and for replacing the image with a size-reduced image such that the size-reduced image version is the only version of the image stored in the database.

41. A program product stored on a computer readable medium for managing a size of a stored image that is accessible to a user, the computer readable medium comprising program code for performing the following steps:

evaluating the image based on reduction criteria which are independent of image capture to determine whether to reduce the data storage size of the image, leave the image alone or purge the image; and

reducing the data storage size of the image based on the results of the evaluating and replacing the image with a size-reduced image version such that the size-reduced image version is the only version of the image stored in the database.

Evidence Appendix

Appellant has neither submitted any evidence pursuant to 37 CFR §§ 1.130, 1.131 or 1.132 nor is there any other evidence entered by the Examiner that Appellant will rely upon in this appeal.

Related Proceedings Appendix

Since there are no other known appeals, interferences or judicial proceedings that may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal of this patent application, Appellant is not submitting copies of decisions rendered by a court or the Board.